

REMARKS

Initially, Applicants would like to thank Examiner Qi for granting an interview and for his time spent in the interview.

Claims 1-12 were previously pending in the Application. New claim 13 is added. Therefore, claims 1-13 are presented for consideration. Claims 2, 3, 5, 6, 8, 9, 11 and 12 were withdrawn from consideration as being directed to a non-elected species.

Claims 1, 4, 7 and 10 are rejected as unpatentable over Applicant's disclosed prior art in view of CHOI et al. 6,429,918 and LEE et al. 6,281,953.

Reconsideration and withdraw of the rejection are respectfully requested because the references do not teach or suggest a resistance value of the black matrix is between  $1 \times 10^2$  and  $1 \times 10^5 \Omega$  cm as recited in claim 1 of the present application.

Specifically, Figure 7 of Applicants disclosed prior art shows a resistance value of the black matrix between about 10  $\Omega$  cm and about 12  $\Omega$  cm. CHOI et al. at column 4, lines 56-59 disclose a resistance value of the black matrix of  $10^6 \Omega$  cm. LEE et al. is silent as to a teaching of a resistance value of the black matrix. The above noted feature is missing from each of the references, is absent from the combination, and thus is not obvious to one having ordinary skill in the art.

In addition, claim 1 provides color layers provided are for each of said pixel layers, said color layers being spaced

apart from said gate lines and drain lines when seen in plan view.

The boundary of the color layer of LEE et al. is not shown in plan view. Based on the cross-sectional views of LEE et al., it cannot be determined that direct capacitive coupling is conducted between the gate line and black matrix as further recited in claim 1.

Claim 1 also provides a black matrix layer, the black matrix layer overlapping the gate line and the drain lines when seen in plan view. The black matrix layer and the drain lines constitute direct capacitive coupling free from any electrode there between. The black matrix layer and the gate lines constitute direct capacitive coupling free from any electrode there between.

Figure 3 of CHOI et al. shows a data bus line 13 which the Examiner has indicated as a drain line. However, based on the teachings of CHOI et al., it cannot be determined whether the black matrix layer and the drain lines constitute direct capacitive for coupling free from any electrode there between and the black matrix layer and the gate lines constitute direct capacitive coupling free from any electrode there between as recited in claim 1.

By way of further explanation, an object of the present invention is to control charge flow from the black matrix to a

color layer. The above references do not recognize this preferred object.

This is evidenced by the embodiment of Figure 1 of the present application where color layer is provided at a position isolated from both the gate line and drain line in plan view. It is possible to select the resistivity of the black matrix in a wide range from sample  $1 \times 10^2$  to  $1 \times 10^{10} \Omega \text{ cm}$ . Even if the resistivity of the black matrix is set to a low value such as  $1 \times 10^2$  to  $1 \times 10^4 \Omega \text{ cm}$ , high performance can be obtained. With a resistivity of the black matrix being set to a lower value, it is possible to make the optical density value of the black matrix remarkably fine wherein the contrast can be improved.

The black matrix of Applicant's disclosed prior art has a higher resistivity of about  $1 \times 10^{10}$  to  $1 \times 10^{11} \Omega \text{ cm}$  in order to try to improve contrast. CHOI et al. has a black matrix resistivity of  $1 \times 10^6 \Omega \text{ cm}$ . CHOI et al. does not recognize that lowering the resistivity of the black matrix would make it possible to make the optical density value of the black matrix relatively high to improve contrast. LEE et al. is silent as to the resistivity of the black matrix. Accordingly, claims 1, 4, 7 and 10 are believed to be patentable over the cited prior art.

New claim 13 provides a range within the range of claim 1 and finds support in Figure 12. Since claim 13 depends from claim 1 and further defines the invention, claim 13 is also believed patentable over the cited prior art.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



---

Liam McDowell, Reg. No. 44,231  
745 South 23<sup>rd</sup> Street  
Arlington, VA 22202  
Telephone (703) 521-2297  
Telefax (703) 685-0573  
(703) 979-4709

LM/psf